

Claims

1. A wire attachment assembly, comprising:
 - a collar including a center aperture dimensioned to receive a portion of a wire, a threaded portion, and a tapered internal recess;
 - a cylindrical member including a threaded end engaging the threaded portion of the collar; and
 - a tapered wedge disposed between the collar and cylindrical member, and including a center aperture dimensioned to receive the portion of the wire and a groove extending along the length of the wedge such that when the cylindrical member and collar are screwed together the tapered internal recess of the collar compresses the tapered wedge about the portion of the wire.
2. The assembly of claim 1, wherein the collar further includes a shoulder allowing gripping with a tool.
3. The assembly of claim 1, wherein the cylindrical member further includes a shoulder allowing gripping with a tool.
4. The assembly of claim 1, wherein the cylindrical member further includes a center recess dimensioned to receive a portion of the wire.
5. The assembly of claim 1, composed of at least one hard material selected from the group consisting of metals, plastics, and polymers.
6. The assembly of claim 1, further comprising means for attaching the cylindrical member to a surface.

7. The assembly of claim 6, wherein the attaching means further comprises means for adjusting the distance of the cylindrical member from the surface.
8. The assembly of claim 1, wherein the inner surface of the wedge includes means for increasing friction between the wedge and the wire.
9. The assembly of claim 1, wherein the cylindrical member further includes an end for attachment through a support member.
10. A wire attachment and tensioning device, comprising:
 - a rigid body having a threaded end;
 - means for attaching a portion of a wire to the rigid body; and
 - a tensioning assembly rotatably attached to a support surface and including a threaded end to receive the threaded end of the rigid body such that rotating the tensioning assembly adjusts the distance of the portion of the wire attaching means from the support surface.
11. The device of claim 10, further comprising a feature allowing turning of the tensioning assembly with a tool.
12. The device of claim 11, wherein the feature comprises a hole disposed trans-axially through the tensioning assembly.
13. The device of claim 11, wherein the feature comprises a shoulder disposed circumferentially about the axis of the tensioning assembly.
14. The device of claim 10, further comprising a means for locking the position of the tensioning assembly with respect to the wire attachment means.

15. The device of claim 10, wherein the tensioning assembly further comprises:
 - a cylindrical member including a feature allowing rotation of the member with a tool and a first threaded end and a second threaded end, the first end being the threaded end receiving the threaded end of the rigid body;
 - a threaded swivel engaging the cylindrical member;
 - a mounting plate including a center aperture through which the threaded swivel and cylindrical member are engaged, and an internal recess for rotatably receiving the threaded swivel; and
 - means for fastening the plate to the support surface.
16. The device of claim 15, wherein the threaded swivel includes a substantially hemispherical surface for engaging the internal recess of the mounting plate.
17. The device of claim 15, wherein the mounting plate further includes a cylindrical flange about the center aperture having a groove dimensioned to allow wire attachment to the support surface at an angle of up to 45 degrees from the axis of the center aperture.
18. The device of claim 15, wherein
 - the mounting plate further includes a plurality of holes; and
 - the means for fastening the mounting plate to the support surface comprises a plurality of fasteners disposed through the holes of the mounting plate into the support surface.
19. The device of claim 10, wherein the tensioning assembly further comprises:
 - a cylindrical member including a feature allowing rotation of the member with a tool, a threaded end being the threaded end receiving the threaded end of the rigid body, and a swiveled end;

a mounting plate including a center aperture through which the cylindrical member is disposed and an internal recess for rotatably receiving the swiveled end of the cylindrical member; and

means for fastening the plate to the support surface.

20. The device of claim 19, wherein the mounting plate further includes a cylindrical flange about the center aperture having a groove dimensioned to allow wire attachment to the support surface at an angle of up to 45 degrees from the axis of the center aperture.
21. The device of claim 19, wherein
 - the mounting plate further includes a plurality of holes; and
 - the means for fastening the mounting plate to the support surface comprises a plurality of fasteners disposed through the holes of the mounting plate into the support surface.
22. The device of claim 10, wherein the tensioning assembly further comprises:
 - a cylindrical member including a feature allowing rotation of the member with a tool and a first threaded end and a second threaded end, the first end being the threaded end receiving the threaded end of the rigid body;
 - a threaded member protruding from the support surface engaging the second threaded end of the cylindrical member.
23. The device of claim 10, wherein the wire attaching means further comprises:
 - a collar including a center aperture dimensioned to receive the portion of the wire, a threaded portion, and a tapered internal recess;
 - and

a tapered wedge disposed between the collar and the rigid body, and including a center aperture dimensioned to receive the portion of the wire and a groove extending along the length of the wedge;

wherein the rigid body further includes a second threaded end engaging the threaded portion of the collar such that when the rigid body and collar are screwed together the tapered internal recess of the collar compresses the tapered wedge about the portion of the wire.

24. The assembly of claim 23, wherein the collar further comprises a shoulder allowing gripping with a tool.
25. The assembly of claim 23, wherein the rigid body further includes a shoulder allowing gripping with a tool.
26. The assembly of claim 23, wherein the rigid body further includes a center recess dimensioned to receive an end of the portion of the wire.
27. The assembly of claim 23, composed of at least one hard material selected from the group consisting of metals, plastics, and polymers.
28. The assembly of claim 23, wherein the inner surface of the wedge has features for increasing friction between the wedge and the wire.
29. A railing system including at least one wire attachment assembly as per claim 1.
30. The railing system of claim 29, wherein the at least one wire attachment assembly connects a wire to a surface at an angle.

31. A railing system including at least one wire attachment and tensioning device as per claim 10.
32. The railing system of claim 31, wherein the at least one wire attachment assembly connects a wire to a surface at an angle.